

**TITLE**

**TRAINING DEVICE FOR SIMULATING OBSTRUCTED VISION IN ATHLETES**

**FIELD OF DISCLOSURE**

**[0001]** The present disclosure generally relates to sports training equipment. More specifically, it pertains to devices for simulating visual obstructions in sports to improve athletic performance.

**BACKGROUND**

**[0002]** Conventional sports training systems may lack the ability to effectively simulate real-game scenarios, particularly in sports such as basketball, football, soccer, etc. that involve direct player interactions. These systems may not adequately replicate the visual obstruction caused by an opponent's hand during shooting, passing, or dribbling. Athletes may struggle to practice and improve their skills in a realistic game-like environment using existing training tools.

**[0003]** Some current training methods may attempt to address visual obstruction, but may have limitations. Existing products in this field may be bulky or uncomfortable for the user to wear during extended training sessions. These products may also lack proper ventilation, potentially causing discomfort due to heat buildup and/or restricted airflow.

**[0004]** Additionally, conventional training devices may have limited adjustability. They may not allow for vertical positioning changes or tilting to simulate different defensive scenarios. This lack of versatility may restrict the range of training exercises that can be performed effectively.

**[0005]** Furthermore, existing visual obstruction training tools may be designed primarily for a single sport, limiting their applicability across different athletic disciplines. This specificity may reduce the overall utility and cost-effectiveness of such training devices for multi-sport athletes or training facilities.

**[0006]** Current training systems may also face challenges in maintaining consistent quality and durability. The materials and construction of existing devices may not withstand

frequent use in intense training environments, potentially leading to premature wear or failure.

**[0007]** Moreover, existing training systems may not adequately address the need for dynamic visual obstruction scenarios. Static visual obstructions may not effectively simulate the rapid movements and changes in defensive positioning that occur during actual gameplay. This limitation may hinder an athlete's ability to develop quick decision-making skills and adaptability under varying visual conditions.

**[0008]** Current training methods may also lack integration with performance tracking and analysis tools. Without quantitative feedback on an athlete's performance during visual obstruction drills, it may be challenging to measure progress and identify specific areas for improvement. This absence of data-driven insights may impede the optimization of training regimens and limit the potential for targeted skill development.

**[0009]** Furthermore, conventional visual obstruction training devices may not account for the diverse physical characteristics of athletes. A one-size-fits-all approach may not accommodate variations in height, facial structure, or visual acuity among users. This lack of customization may result in suboptimal training experiences for some athletes and potentially compromise the effectiveness of the training exercises.

**[0010]** Additionally, existing training tools may not adequately simulate the psychological aspects of facing visual obstruction during competition. The mental pressure and focus required to perform under partially obstructed vision conditions may not be fully replicated by current training methods. This gap in psychological preparation may leave athletes less equipped to handle the stress and challenges of real-game scenarios.

**[0011]** Lastly, current visual obstruction training systems may not offer sufficient variability in training scenarios. The ability to simulate different defensive strategies, such as various hand positions or timing of visual obstruction, may be limited. This lack of diversity in training exercises may restrict an athlete's ability to develop a comprehensive skill set for handling visual obstruction in various game situations.

**[0012]** Some currently available solutions for visual obstruction training in sports may include handheld blocking pads, defensive dummies, and vision-limiting eyewear. Handheld

blocking pads may be used by coaches or training partners to simulate an opponent's hand, but may lack consistency and realism in positioning. Defensive dummies may provide a static visual obstruction but may not accurately replicate the dynamic nature of real gameplay. Vision-limiting eyewear may partially obstruct an athlete's field of view but may not specifically target the visual interference caused by an opponent's hand.

**[0013]** These existing solutions may be inadequate for several reasons. Handheld blocking pads may require additional personnel for operation, potentially limiting training efficiency and consistency. The positioning and movement of these pads may also be subject to human error, reducing the realism of the training experience. Defensive dummies may offer limited adjustability and may not adequately simulate the varied defensive scenarios encountered in actual games. Vision-limiting eyewear may provide a general visual obstruction but may not accurately replicate the specific visual challenges posed by an opponent's hand during shooting, passing, or dribbling.

**[0014]** Furthermore, these solutions may lack the ability to provide consistent, repeatable training scenarios. The effectiveness of handheld blocking pads may vary depending on the skill and consistency of the person operating them. Defensive dummies may offer limited variability in training exercises, potentially leading to predictable and less challenging practice sessions. Vision-limiting eyewear may not allow for easy adjustment of the level or type of visual obstruction, limiting the range of training scenarios that can be simulated.

**[0015]** Additionally, existing visual obstruction training tools may not adequately address the need for sport-specific training. Generic visual obstruction devices may not accurately replicate the unique visual challenges encountered in specific sports, such as basketball or football. This lack of sport-specific design may limit the transferability of skills developed during training to actual game situations.

**[0016]** Moreover, current solutions may not provide a comprehensive training experience that addresses both physical and mental aspects of performance under visual obstruction. The psychological pressure of performing with limited vision in a competitive environment may not be effectively simulated by existing training methods. This gap in

mental preparation may leave athletes less equipped to handle the stress and decision-making challenges of real-game scenarios.

**[0017]** There is a pressing need for an improved visual obstruction training system in sports, particularly in basketball, that can effectively simulate real-game scenarios. Current solutions may fall short in providing a comprehensive training experience that addresses both physical and mental aspects of performance under visual obstruction. The psychological pressure of performing with limited vision in a competitive environment may not be effectively simulated by existing training methods. This gap in mental preparation may leave athletes less equipped to handle the stress and decision-making challenges of real-game scenarios. A more realistic, adjustable, and sport-specific solution may be required to enhance athlete development and better prepare them for the visual and psychological challenges encountered during actual gameplay.

#### **BRIEF OVERVIEW**

**[0018]** This brief overview is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This brief overview is not intended to identify key features or essential features of the claimed subject matter. Nor is this brief overview intended to be used to limit the claimed subject matter's scope.

**[0019]** A sports training apparatus may comprise a headband configured to encircle a user's head. The headband may comprise a pair of opposing side straps. The headband may comprise a top strap configured to connect to the side straps and cover a portion of the top of the user's head. The sports training apparatus may comprise a connector configured to connect the two side straps and the top strap. The sports training apparatus may comprise a vision restricting member rotatably connected to the headband at a connection point on the connector. The vision restricting member may be shaped like a hand. The vision restricting member may comprise a plurality of ventilation holes.

**[0020]** At least one of the side straps and the top strap may be formed from an elastic material. At least one of the side straps and the top strap may have an adjustable length. The connector may comprise a padded side configured to interface with the user's forehead. The

plurality of ventilation holes may be formed in a palm portion of the hand-shaped vision restricting member. The vision restricting member may be formed from a lightweight material selected from the group consisting of plastic and aluminum. The vision restricting member may be angularly adjustable in a first direction about the connection point. The vision restricting member may be angularly adjustable in a second direction, orthogonal to the first direction about the connection point.

**[0021]** A sports training system may comprise a headband apparatus configured to be worn on a user's head. The headband apparatus may comprise a first side strap and a second opposing side strap configured to encircle the user's head. The headband apparatus may comprise a top strap configured to connect to the first and second side straps and extend over a top portion of the user's head. The headband apparatus may comprise a connector configured to join the first side strap, the second side strap, and the top strap. The sports training system may comprise a vision obstructing element rotatably coupled to the connector. The vision obstructing element may comprise a hand-shaped member configured to partially obstruct the user's field of view. The vision obstructing element may comprise a plurality of apertures formed in a central portion of the hand-shaped member to allow airflow. The vision obstructing element may comprise an adjustment mechanism configured to allow angular positioning of the hand-shaped member relative to the user's face about two orthogonal axes.

**[0022]** At least one of the first side strap, the second side strap, and the top strap may comprise an elastic material. At least one of the first side strap, the second side strap, and the top strap may comprise an adjustable length mechanism. The connector may comprise a cushioned surface configured to contact the user's forehead. The hand-shaped member may be fabricated from a lightweight material selected from the group consisting of plastic and metal alloys. The adjustment mechanism may comprise a locking element configured to secure the hand-shaped member in a selected position relative to at least one of the two axes. The vision obstructing element may be configured to rotate about an axis perpendicular to a plane of the hand-shaped member.

**[0023]** A sports training device may comprise a head-encircling band. The head-encircling band may comprise a first elastic side portion. The head-encircling band may comprise a second elastic side portion. The head-encircling band may comprise an elastic top portion connecting the first and second elastic side portions. The sports training device may comprise a forehead pad connected to the head-encircling band. The sports training device may comprise a vision-limiting structure rotatably attached to the forehead pad. The vision-limiting structure may comprise a hand-shaped panel configured to partially obstruct a user's field of view. The vision-limiting structure may comprise a plurality of air passages formed through a central region of the hand-shaped panel. The vision-limiting structure may comprise a vertical adjustment mechanism configured to modify a position of the hand-shaped panel relative to the user's eyes.

**[0024]** At least one of the first elastic side portion, the second elastic side portion, and the elastic top portion may comprise an adjustable length mechanism. The hand-shaped panel may be fabricated from a lightweight polymeric material. The vertical adjustment mechanism may comprise a locking element configured to secure the hand-shaped panel at a selected vertical position. The vision-limiting structure may be configured to rotate about an axis perpendicular to a plane of the hand-shaped panel.

**[0025]** Both the foregoing brief overview and the following detailed description provide examples and are explanatory only. Accordingly, the foregoing brief overview and the following detailed description should not be considered to be restrictive. Further, features or variations may be provided in addition to those set forth herein. For example, embodiments may be directed to various feature combinations and sub-combinations described in the detailed description.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0026]** The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate various embodiments of the present disclosure. The drawings contain representations of various trademarks and copyrights owned by the Applicant. In addition, the drawings may contain other marks owned by third parties and are being used

for illustrative purposes only. All rights to various trademarks and copyrights represented herein, except those belonging to their respective owners, are vested in and the property of the Applicant. The Applicant retains and reserves all rights in its trademarks and copyrights included herein, and grants permission to reproduce the material only in connection with reproduction of the granted patent and for no other purpose.

**[0027]** Furthermore, the drawings may contain text or captions that may explain certain embodiments of the present disclosure. This text is included for illustrative, non-limiting, explanatory purposes of certain embodiments detailed in the present disclosure. In the drawings:

**[0028]** FIG. 1 illustrates a front view of a sports training apparatus consistent with the present disclosure;

**[0029]** FIG. 2 illustrates a left-side view of the sports training apparatus;

**[0030]** FIG. 3 illustrates a rear view of the sports training apparatus;

**[0031]** FIG. 4 illustrates a right-side view of the sports training apparatus;

**[0032]** FIG. 5 illustrates a perspective view of the sports training apparatus; and

**[0033]** FIG. 6 is a flow chart of a method for using the sports training apparatus.

### **DETAILED DESCRIPTION**

**[0034]** As a preliminary matter, it will readily be understood by one having ordinary skill in the relevant art that the present disclosure has broad utility and application. As should be understood, any embodiment may incorporate only one or a plurality of the above-disclosed aspects of the disclosure and may further incorporate only one or a plurality of the above-disclosed features. Furthermore, any embodiment discussed and identified as being “preferred” is considered to be part of a best mode contemplated for carrying out the embodiments of the present disclosure. Other embodiments also may be discussed for additional illustrative purposes in providing a full and enabling disclosure. Moreover, many embodiments, such as adaptations, variations, modifications, and equivalent arrangements, will be implicitly disclosed by the embodiments described herein and fall within the scope of the present disclosure.

**[0035]** Accordingly, while embodiments are described herein in detail in relation to one or more embodiments, it is to be understood that this disclosure is illustrative and exemplary of the present disclosure and are made merely to provide a full and enabling disclosure. The detailed disclosure herein of one or more embodiments is not intended, nor is to be construed, to limit the scope of patent protection afforded in any claim of a patent issuing here from, which scope is to be defined by the claims and the equivalents thereof. It is not intended that the scope of patent protection be defined by reading into any claim a limitation found herein that does not explicitly appear in the claim itself.

**[0036]** Thus, for example, any sequence(s) and/or temporal order of steps of various processes or methods that are described herein are illustrative and not restrictive. Accordingly, it should be understood that, although steps of various processes or methods may be shown and described as being in a sequence or temporal order, the steps of any such processes or methods are not limited to being carried out in any particular sequence or order, absent an indication otherwise. Indeed, the steps in such processes or methods generally may be carried out in various different sequences and orders while still falling within the scope of the present invention. Accordingly, it is intended that the scope of patent protection is to be defined by the issued claim(s) rather than the description set forth herein.

**[0037]** Additionally, it is important to note that each term used herein refers to that which an ordinary artisan would understand such a term to mean based on the contextual use of the term herein. To the extent that the meaning of a term used herein—as understood by the ordinary artisan based on the contextual use of such term—differs in any way from any particular dictionary definition of such term, it is intended that the meaning of the term as understood by the ordinary artisan should prevail.

**[0038]** Regarding applicability of 35 U.S.C. §112, ¶6, no claim element is intended to be read in accordance with this statutory provision unless the explicit phrase “means for” or “step for” is actually used in such claim element, whereupon this statutory provision is intended to apply in the interpretation of such claim element.

**[0039]** Furthermore, it is important to note that, as used herein, “a” and “an” each generally denotes “at least one,” but does not exclude a plurality unless the contextual use



dictates otherwise. When used herein to join a list of items, “or” denotes “at least one of the items,” but does not exclude a plurality of items of the list. Finally, when used herein to join a list of items, “and” denotes “all of the items of the list.”

**[0040]** The following detailed description refers to the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the following description to refer to the same or similar elements. While many embodiments of the disclosure may be described, modifications, adaptations, and other implementations are possible. For example, substitutions, additions, or modifications may be made to the elements illustrated in the drawings, and the methods described herein may be modified by substituting, reordering, or adding stages to the disclosed methods. Accordingly, the following detailed description does not limit the disclosure. Instead, the proper scope of the disclosure is defined by the appended claims. The present disclosure contains headers. It should be understood that these headers are used as references and are not to be construed as limiting upon the subject matter disclosed under the header.

**[0041]** The present disclosure may address a technical problem in athletic training, particularly in basketball and other sports where athletes may need to improve their performance when faced with visual obstructions during gameplay. Traditional training methods may not adequately simulate the experience of having an opponent's hand in one's face, which may be a common occurrence in competitive play.

**[0042]** To address this problem, a training device may be provided that simulates the presence of an opponent's hand in the user's field of view. The device may comprise a hand-shaped piece attached to an elastic headband that partially covers the user's face. This configuration may allow athletes to practice various skills, such as dribbling, shooting, and passing, while experiencing a partially obstructed view similar to what they might encounter in a real game situation.

**[0043]** In one example, the training device may be used in a basketball practice setting. A player may wear the device while performing shooting drills. The hand-shaped piece may partially obstruct the player's view of the basket, challenging them to adjust their shooting

technique and improve their spatial awareness. This may help the player develop the ability to make accurate shots even when faced with defensive pressure in a game situation.

**[0044]** In another example, the training device may be utilized during dribbling exercises. A player wearing the device may practice navigating a course while dribbling a basketball. The partially obstructed view may force the player to rely more on their peripheral vision and ball-handling skills, potentially improving their ability to maintain control of the ball under defensive pressure.

**[0045]** The training device may also find applications in other sports where visual obstruction is a factor. For instance, in American football, a quarterback may use the device to practice reading defenses and making passing decisions with a simulated pass rusher's hand in their face. This may help improve the quarterback's ability to make quick, accurate throws under pressure.

**[0046]** In yet another example, the training device may be employed in agility drills across various sports. Athletes may wear the device while performing footwork exercises, forcing them to rely more on proprioception and spatial awareness rather than visual cues. This may enhance their overall body control and responsiveness in game situations where their vision may be temporarily impaired.

**[0047]** These examples may illustrate how the training device may address the technical problem of simulating visual obstruction in athletic training across multiple scenarios and sports. By providing a realistic simulation of an opponent's hand in the user's face, the device may enable athletes to develop and refine skills that are crucial for performance under defensive pressure.

**[0048]** The training device may provide several technical advantages over the prior art. The hand-shaped piece may be vertically adjustable, allowing users to customize the level of visual obstruction based on their specific training needs or physical characteristics. This adjustability may enable more targeted and personalized training compared to fixed visual obstruction devices.

**[0049]** The elastic headband with three stripes may provide a secure and comfortable fit for users of different head sizes and shapes. This may allow for extended use during training sessions without discomfort, potentially improving the effectiveness of the training.

**[0050]** The inclusion of breathing holes in the palm area of the hand-shaped piece may enhance user comfort by allowing proper ventilation and airflow. This feature may enable users to wear the device for longer periods without experiencing discomfort due to heat or moisture buildup.

**[0051]** A small cushion may provide comfort where the device contacts the user's forehead. This may reduce pressure points and potential discomfort during extended use, allowing athletes to focus on their training rather than any physical discomfort from the device.

**[0052]** The lightweight design of the device may minimize interference with the user's natural movements during athletic activities. This may allow for more realistic training scenarios compared to bulkier visual obstruction devices.

**[0053]** The fixed horizontal position of the hand-shaped piece in the current version may provide consistent visual obstruction, potentially allowing users to develop more reliable muscle memory and spatial awareness skills. This consistency may be beneficial for certain types of training exercises.

**[0054]** The device's design may allow for easy removal or adjustment during breaks in training, potentially improving the efficiency of practice sessions by allowing quick transitions between obstructed and unobstructed vision drills.

**[0055]** The versatility of the device may enable its use across multiple sports and training scenarios, potentially providing a cost-effective solution for athletic programs looking to improve performance under visual obstruction conditions.

**[0056]** The simple yet effective design may allow for easy maintenance and durability, potentially extending the lifespan of the device compared to more complex visual obstruction tools.

**[0057]** The device may simulate game-like conditions more accurately than traditional training methods, potentially leading to improved transfer of skills from practice to actual gameplay situations where visual obstructions are common.

**[0058]** The present disclosure includes many aspects and features. Moreover, while many aspects and features relate to, and are described in, the context of a training device, embodiments of the present disclosure are not limited to use only in this context.

## **I. PLATFORM OVERVIEW**

**[0059]** This overview is provided to introduce a selection of concepts in a simplified form that are further described below. This overview is not intended to identify key features or essential features of the claimed subject matter. Nor is this overview intended to be used to limit the claimed subject matter's scope.

**[0060]** The present disclosure relates to a sports training apparatus designed to improve an athlete's performance by simulating visual obstructions commonly encountered during gameplay. The apparatus may comprise a headband configured to be worn on a user's head and a vision restricting member shaped like a hand that partially obstructs the user's field of view.

**[0061]** The headband may include two side straps designed to encircle the user's head and a top strap that connects to the side straps and covers a portion of the top of the user's head. These straps may be made from an elastic material to provide a secure and comfortable fit for users with different head sizes. The straps may also feature adjustable length mechanisms to further customize the fit.

**[0062]** A connector may be used to join the side straps and top strap. This connector may include a padded surface on the side that interfaces with the user's forehead, enhancing comfort during extended use.

**[0063]** The vision restricting member, shaped like a hand, may be rotatably connected to the headband at the connector. This hand-shaped piece may be fabricated from lightweight materials such as plastic or aluminum to minimize interference with the user's natural movements. The vision restricting member may include a plurality of ventilation holes,

typically located in the palm area, to allow for proper airflow while still maintaining its vision-obstructing function.

**[0064]** The apparatus may feature adjustability in multiple directions. The hand-shaped piece may be vertically adjustable, allowing users to modify its position relative to their eyes. It may also be angularly adjustable about the connection point, potentially in two orthogonal directions. Some versions of the apparatus may include locking mechanisms to secure the hand-shaped piece in a desired position.

**[0065]** This training device may be utilized across various sports, particularly those where athletes frequently face visual obstructions from opponents. In basketball, for instance, players may use the device to practice shooting, dribbling, and passing with a simulated hand in their face. American football quarterbacks might employ it to enhance their ability to read defenses and make passing decisions under pressure.

**[0066]** By providing a realistic simulation of game-like visual obstructions, this training apparatus may enable athletes to develop enhanced spatial awareness, improve their peripheral vision, and refine their ability to perform under defensive pressure. The device's design, focusing on comfort, adjustability, and realistic simulation, may offer a more effective training tool compared to traditional methods or existing products in the market.

**[0067]** Embodiments of the present disclosure may comprise methods, systems, and a computer readable medium comprising, but not limited to, at least one of the following:

- A. A Headband Mechanism;**
- B. A Vision Restriction Device; and**
- C. A Position Adjustment Mechanism.**

**[0068]** Details with regards to each module are provided below. Although modules are disclosed with specific functionality, it should be understood that functionality may be shared between modules, with some functions split between modules, while other functions duplicated by the modules. Furthermore, the name of each module should not be construed as limiting upon the functionality of the module. Moreover, each component disclosed within each module can be considered independently, without the context of the other components within the same module or different modules. Each component may contain functionality

defined in other portions of this specification. Each component disclosed for one module may be mixed with the functionality of other modules. In the present disclosure, each component can be claimed on its own and/or interchangeably with other components of other modules.

**[0069]** Both the foregoing overview and the following detailed description provide examples and are explanatory only. Accordingly, the foregoing overview and the following detailed description should not be considered to be restrictive. Further, features or variations may be provided in addition to those set forth herein. For example, embodiments may be directed to various feature combinations and sub-combinations described in the detailed description.

## **II. PLATFORM CONFIGURATION**

**[0070]** With reference to Figure 1, the operating environment for enabling the embodiments of the present disclosure may comprise an athletic training setting, such as a basketball court or practice facility. The training device 100 may be worn by an athlete during practice sessions or drills.

**[0071]** The sports training apparatus 100 may comprise a headband 110 configured to encircle a user's head. The headband 110 may include a pair of opposing side straps 112, 114 and a top strap 116 configured to connect to the side straps 112, 114 and cover a portion of the top of the user's head. A connector 120 may be configured to connect the two side straps 112, 114 and the top strap 116.

**[0072]** In some embodiments, at least one of the side straps 112, 114 and the top strap 116 may be formed from an elastic material. This may allow the headband 110 to conform comfortably to different head sizes and shapes. Additionally or alternatively, at least one of the side straps 112, 114 and the top strap 116 may have an adjustable length, providing further customization options for fit.

**[0073]** The connector 120 may comprise a padded surface configured to interface with the user's forehead. This padded surface may enhance comfort during extended wear of the apparatus 100. The plurality of ventilation holes 132 may be formed in a palm portion of the

hand-shaped vision restricting member 130. These holes 132 may allow for airflow, preventing discomfort from heat or moisture buildup while still maintaining the vision restricting function.

**[0074]** The sports training apparatus 100 may further include a vision restricting member 130 rotatably connected to the headband 110 at a connection point on the connector 120. In some embodiments, the vision restricting member 130 may be shaped like a hand, or may have any other shape useful to partially obscure a user's vision. The vision restricting member 130 may define a plurality of ventilation holes 132. In embodiments, the ventilation holes 132 may allow airflow while still restricting the user's vision. The ventilation holes 132 may be formed in a central portion of the vision restricting device 130. As a non-limiting example, where the vision restricting member 130 is shaped like a hand, the ventilation holes 132 may be formed in a palm portion of the device. The hand-shaped vision restricting member 130 may be configured to partially obstruct the user's field of view when the apparatus 100 is worn.

**[0075]** The vision restricting member 130 may be formed from a lightweight material such as plastic or aluminum. This lightweight construction may minimize interference with the user's natural movements during training activities. The vision restricting member 130 may be angularly adjustable in a first direction about the connection point. For example, the rotation may occur within a plane defined by the vision restricting member 130. This adjustability may allow users to customize the level of visual obstruction based on their training needs or preferences.

**[0076]** In some embodiments, the vision restricting member 130 may be angularly adjustable in a second direction, orthogonal to the first direction. The second direction may be about an axis that is substantially horizontal, allowing for the vertical rotation of the vision restricting member. This additional axis of adjustment may provide even greater flexibility in positioning the vision restricting member 130 relative to the user's face and eyes.

**[0077]** The sports training apparatus 100 may be used in various athletic training scenarios. For basketball players, the apparatus 100 may be employed during shooting,

dribbling, and/or passing drills to simulate the presence of a defender's hand obstructing vision. Football quarterbacks may utilize the apparatus 100 to practice decision-making and passing accuracy under simulated defensive pressure. The apparatus 100 may also be applicable to other sports or activities where visual obstruction is a relevant challenge.

**[0078]** By providing a consistent and adjustable visual obstruction, the sports training apparatus 100 may enable athletes to develop improved spatial awareness, peripheral vision, and performance under defensive pressure. The combination of realistic simulation, comfort features, and adjustability may make the apparatus 100 an effective training tool compared to traditional methods of simulating visual obstructions in sports practice.

**[0079]** The sports training apparatus 100 may include a vision restricting member 130 that may be adjustable relative to the user's eyes. This adjustability may allow users to customize the positioning of the visual obstruction based on their height, preferences, and/or specific training needs. The adjustability may also allow for fast transitions between drills and conversations with a coach or teammate regarding the drills.

**[0080]** The vision restricting member 130 may also be angularly adjustable about the connection point to the headband in at least one direction. This angular adjustment may allow users to modify the angle at which the hand-shaped obstruction is presented in their field of view. In some embodiments, the vision restricting member 130 may be angularly adjustable in two orthogonal directions, providing even greater flexibility in positioning.

**[0081]** The sports training apparatus 100 may incorporate locking mechanisms to secure the vision restricting member 130 in a desired position after adjustment. These locking mechanisms may prevent unwanted movement of the vision restricting member 130 during use while still allowing for easy adjustment when needed.

**[0082]** The hand-shaped vision restricting member 130 may be fabricated from lightweight materials such as plastic or aluminum. The use of lightweight materials may help minimize any interference with the user's natural movements during training exercises.

**[0083]** In some embodiments, the vision restricting member 130 may include a logo or branding element positioned at the top edge of the hand-shaped piece. This branding element may serve to identify the product and may be applied through methods such as



stamping, printing, painting, a badge held on by adhesive, and/or any other method known to those of skill in the art.

**[0084]** The sports training apparatus 100 may be designed for use in various athletic training scenarios. For basketball players, the apparatus 100 may be employed during shooting, dribbling, and passing drills to simulate the presence of a defender's hand obstructing vision. Football quarterbacks may utilize the apparatus 100 to practice decision-making and passing accuracy under simulated defensive pressure. The apparatus 100 may also be applicable to other sports or activities where visual obstruction is a relevant challenge.

**[0085]** By providing a consistent and adjustable visual obstruction, the sports training apparatus 100 may enable athletes to develop improved spatial awareness, peripheral vision, and performance under defensive pressure. The combination of realistic simulation, comfort features, and adjustability may make the apparatus 100 an effective training tool for enhancing athletic performance in game-like conditions.

**[0086]** In some embodiments, the vision restricting member 130 may be fabricated from a lightweight polymeric material such as plastic. The use of a lightweight plastic material may help minimize any interference with the user's natural movements during training exercises while still providing sufficient rigidity to maintain the desired hand shape.

**[0087]** Alternatively, the vision restricting member 130 may be formed from a lightweight metal such as aluminum. An aluminum construction may offer increased durability compared to plastic while still maintaining a low overall weight.

**[0088]** The sports training apparatus 100 may incorporate additional comfort features beyond the padded connector. For example, the inner surface of the side straps and top strap may be lined with a soft, moisture-wicking material to enhance comfort during extended wear. This lining may help prevent chafing and irritation, especially during intense training sessions.

**[0089]** In some embodiments, the vision restricting member 130 may include reflective or high-visibility elements. These elements may be incorporated along the edges or on the

back surface of the hand-shaped piece. The reflective elements may enhance visibility and safety when the apparatus 100 is used in low-light conditions or outdoor environments.

**[0090]** The sports training apparatus 100 may be offered in multiple sizes to accommodate different head sizes and shapes. The headband may be available in small, medium, and large sizes, with the vision restricting member 130 scaled proportionally. This size range may help ensure a proper fit for a wide range of users, from youth athletes to adult professionals.

**[0091]** In certain embodiments, the vision restricting member 130 may be detachable from the headband. This feature may allow for easy replacement of the vision restricting member if it becomes damaged or worn, or to swap between different styles or sizes of vision restricting members. The detachable design may also facilitate cleaning and maintenance of the apparatus 100.

**[0092]** The sports training apparatus 100 may include a storage and carrying case. This case may be designed to protect the apparatus 100 during transport and storage, helping to maintain its shape and prevent damage. The case may be made from a durable material such as nylon or polyester and may include separate compartments for the headband and vision restricting member.

**[0093]** In some embodiments, the vision restricting member 130 may incorporate a semi-transparent or translucent material in certain areas. This feature may allow for a graduated level of visual obstruction, simulating scenarios where an opponent's hand may not completely block the user's vision. The level of transparency may be adjustable or customizable to suit different training needs.

**[0094]** The sports training apparatus 100 may be designed for use in various athletic training scenarios beyond basketball and football. For example, the apparatus 100 may be employed in soccer training to simulate heading the ball with obstructed vision. In volleyball, the apparatus 100 may be used to practice spiking and blocking with limited visibility. The versatility of the apparatus 100 may make it a valuable training tool across multiple sports disciplines.

**[0095]** Accordingly, embodiments of the present disclosure provide a software and hardware platform comprised of a distributed set of computing elements, including, but not limited to:

**A. A Headband Mechanism**

**[0096]** The sports training apparatus 100 may comprise a headband 110. In embodiments, the headband 110 may be configured to encircle and/or at least partially surround a user's head. The headband 110 may comprise a pair of opposing side straps 112, 114. The headband 110 may further comprise a top strap 116. The top strap 116 may be configured to connect to the side straps 112, 114 and cover a portion of the top of the user's head.

**[0097]** The headband 110 may include at least one connector 120. The connector 120 may be configured to connect the two side straps 112, 114 and the top strap 116. The connector 120 may comprise a padded side. The padded side may be configured to interface with the user's forehead. This may provide added comfort to the user, particularly with prolonged use. In some embodiments, the headband 110 may include a first connector 120 disposed at a front portion of the device 100, and a second connector 124 disposed at a rear portion of the device. Each connector 120, 124 may include three connection points to allow for joinder of the two side straps 112, 114 and the top strap 116. As shown in FIG. 1, the first connector 120 may be generally triangular. As shown in FIG. 2, the second connector 124 may be generally square, and may be smaller than the first connector.

**[0098]** At least one of the side straps 112, 114 and the top strap 116 may be formed from an elastic material. This may allow for a secure and comfortable fit on different head sizes. Additionally or alternatively, at least one of the side straps 112, 114 and the top strap 116 may have an adjustable length. This adjustability may further enhance the fit and comfort for different users.

**[0099]** The headband 110 may be designed to provide a secure and stable platform for attaching the vision restricting member 130. The combination of elastic materials, adjustable straps, and padded connector may allow the headband 110 to be worn comfortably for extended training sessions without slipping or causing discomfort.

**[00100]** In some embodiments, the headband 110 may incorporate moisture-wicking materials to help manage sweat during intense training. The headband 110 may optionally feature reflective elements for improved visibility during low-light training conditions.

**B. A Vision Restricting Device**

**[00101]** The sports training apparatus 100 may include a vision restricting member 130. The vision restricting member 130 may be shaped like a hand to simulate an opponent's hand obstructing the user's view. The hand-shaped vision restricting member 130 may include a palm portion and finger portions extending from the palm portion. In embodiments, the finger portions may be spread apart from one another allowing the user to see between individual finger portions of the while the apparatus 100 is worn.

**[00102]** The vision restricting member 130 may be formed from a lightweight, durable material such as plastic, aluminum, and/or the like to minimize interference with the user's movements during training. The lightweight construction may allow the vision restricting member to remain stable in position without excessive weight or bulk. The material used to form the vision restricting member 130 is preferably opaque or translucent, such that the user cannot see through the vision restricting member.

**[00103]** One or more ventilation holes 132 may be formed in the palm portion of the hand-shaped vision restricting member 130. The ventilation holes 132 may facilitate airflow to the user's face while still restricting vision. This may provide comfort during extended use by preventing heat and moisture buildup. Each ventilation hole 132 may be formed as an aperture or through-hole in the vision restricting member 130. In some embodiments, the one or more ventilation holes 132 may include a plurality of small ventilation holes. Additionally or alternatively, the one or more ventilation holes 132 may include one or more larger holes 132. These larger holes may be covered with a mesh or screen material that permits airflow therethrough while at least partially obscuring a user's vision.

**[00104]** The vision restricting member 130 may be rotatably connected to the headband at a connection point 134. The rotatable connection may allow angular adjustment of the vision restricting member relative to the user's face. The vision restricting member may be angularly adjustable in a first direction about the connection point to modify the vertical

position. The vision restricting member may also be angularly adjustable in a second direction, orthogonal to the first direction and, about the connection point to modify the angular position.

**C. A Position Adjustment Mechanism**

**[00105]** The rotatable connection point 134 may serve as an adjustment mechanism 140, allowing positioning of the vision restricting member 130 at different angles. The adjustment mechanism 140 may optionally include a locking element to secure the vision restricting member 130 in a selected position. This may allow customization of the visual obstruction for different training scenarios and/or user preferences. In embodiments, the rotatable connection point 134 may allow for rotation of the vision restricting member 130 with two degrees of freedom. That is, the vision restricting member can change orientation in two distinct rotational directions.

**[00106]** A first rotational direction may allow for orientation change in a vertical direction. This rotational direction may allow the vision restricting member 130 to be rotated up and down, allowing the lower portion of the vision restricting member to move closer to or further away from the user's face. Rotation about this axis may be useful in lifting the vision restricting member 130 to talk to a coach or teammate during a practice. A first hinge 144 may be provided to allow the vision restricting member 130 to rotate in the first rotational direction. In some embodiments, the hinge 144 may allow for continuous movement about its axis. In other embodiments, the hinge 144 may permit stepped movement between a plurality of positions.

**[00107]** A second rotational axis may be generally orthogonal to the first axis, allowing for angular adjustment of the vision restricting component 130 about the connection point 134. This second rotational axis may enable the vision restricting member 130 to be rotated relative to the user's face, such that a lower portion of the vision restricting member moves side to side relative to the user's face. A second hinge 146 may be provided to allow the vision restricting member 130 to rotate in the second rotational direction. In some embodiments, the hinge 146 may allow for continuous movement about its axis. In other embodiments, the hinge 146 may permit stepped movement between a plurality of positions.

**[00108]** The position adjustment mechanism 140 may thus permit angular adjustment of the vision restricting member 130, allowing rotation about a first axis, (allowing the vision restricting member to be tilted up or down), and/or about a second axis (permitting side-to-side movement of the vision restricting member). In some embodiments, the angular adjustment component may provide rotation about both axes simultaneously.

**[00109]** The angular adjustment may be facilitated by a ball and socket joint or a multi-axis hinge at the connection point 134 between the vision restricting member 130 and the headband 110.

**[00110]** In some embodiments, the adjustment mechanism 140 may allow for linear or translational adjustment of the vision restricting member. The linear adjustment may include a sliding mechanism. The sliding mechanism may comprise a track and slider arrangement. The track may be attached to or formed as part of the connector 120 on the headband. The slider may be affixed to the vision restricting member 130. In some embodiments, the connection point 134 may be formed as the slider. The slider may be configured to move along the track, enabling vertical positioning of the vision restricting member 130.

**[00111]** A locking mechanism may be incorporated into the position adjusting mechanism 140 to secure the vision restricting member 130 at a desired position and/or angular orientation. This locking mechanism may include, as non-limiting examples, a friction-based system, a ratchet a pawl arrangement, and/or a pin and hole configuration. Additionally or alternatively, the mechanism may utilize adjustable tension, a clamping system, and/or other means to hold the vision restricting member 130 in a particular orientation once positioned. The locking mechanism may allow the user to easily adjust and fix the position/orientation of the vision restricting member 130 as needed during training sessions.

### **III. PLATFORM OPERATION**

**[00112]** The following depicts an example of at least one method of a plurality of methods that may be performed by at least one of the aforementioned components. Although

methods may be described as being performed by a single component, it should be understood that, in some embodiments, different operations may be performed by different components.

**[00113]** Furthermore, although the stages of the following example method are disclosed in a particular order, it should be understood that the order is disclosed for illustrative purposes only. Stages may be combined, separated, reordered, and various intermediary stages may exist. Accordingly, it should be understood that the various stages, in various embodiments, may be performed in arrangements that differ from the ones described below. Moreover, various stages may be added or removed from the without altering or departing from the fundamental scope of the depicted methods and systems disclosed herein.

**[00114]** Consistent with embodiments of the present disclosure, a method may be performed by at least one of the aforementioned components. FIG. 6 is a flow chart setting forth the general stages involved in a method 600 consistent with an embodiment of the disclosure for providing the sports training apparatus 100. Method 600 may begin at stage 610 where the apparatus is positioned on the user's head: The user may place the headband around their head, with the side straps encircling the head and the top strap positioned over the top of the head. The connector with the padded side may be positioned on the user's forehead for comfort. The elastic material of the straps may allow for a snug yet comfortable fit on different head sizes. As an example, a basketball player may place the apparatus on their head before starting a shooting drill, ensuring the padded connector rests comfortably on their forehead.

**[00115]** At stage 620, the user may adjust the fit of the headband. The user may adjust the length of the side straps and/or top strap if they are adjustable to achieve an optimal fit. This may ensure the apparatus remains securely in place during athletic activities. For example, a football quarterback with a larger head size may lengthen the side straps to achieve a secure fit without discomfort.

**[00116]** As stage 630, the vision restricting member may be positioned. The hand-shaped vision restricting member may be rotated into position in front of the user's face. The user may adjust the vertical position of the vision restricting member to partially obstruct their

field of view as desired for the training exercise. As non-limiting examples, a volleyball player may rotate the hand-shaped member down in front of their face to simulate a blocker's hand when practicing spikes; a soccer player may angle the vision restricting member slightly to one side to simulate the view when heading a ball with an opponent nearby.

**[00117]** At stage 640, the angle of the vision restricting member may be adjusted: The user may adjust the angle of the vision restricting member about the connection point. This may allow for customization of the visual obstruction based on the specific training needs or user preferences.

**[00118]** At stage 650, the user may engage in athletic and/or activities. With the apparatus in place, the user may engage in various athletic activities such as basketball drills. These may include, but need not be limited to:

- Shooting practice: The user may attempt to shoot baskets with the partially obstructed view, developing their ability to accurately judge shot distance and angle despite visual interference. For example, a basketball player may practice free throws with the partial visual obstruction.
- Dribbling drills: The user may practice dribbling skills with limited visibility, enhancing their ball control and spatial awareness. As one example, a point guard may run dribbling drills through cones with limited visibility.
- Passing exercises: The user may work on passing accuracy and decision-making with the simulated defensive obstruction in their field of view. As an example, a player may work on no-look passes with the simulated defensive hand in view.

**[00119]** During use, the ventilation holes in the palm portion of the hand-shaped vision restricting member may allow for airflow, helping to prevent discomfort from heat or moisture buildup. During an intense training session, a player may appreciate the airflow through the ventilation holes, allowing them to focus on the drill rather than discomfort.

**[00120]** The user may periodically adjust the position and/or angle of the vision restricting member as needed during the training session. This may involve, as non-limiting examples,



rotating the vision restricting member upwards to have unobstructed vision when receiving instructions and/or taking breaks. For example, a coach may instruct players to periodically rotate the vision restricting member up to receive feedback, then back down to continue the drill.

**[00121]** In stage 660, the use may remove or repositioning the apparatus. After completing a training exercise or drill, the user may easily remove the apparatus or reposition it on their head for the next activity. Players may quickly remove the apparatus when switching between different types of drills or reposition it for varied training scenarios.

**[00122]** The sports training apparatus 100 may include a position adjustment mechanism 140 for modifying the orientation of the vision restricting member 130 relative to the user's face. The position adjustment mechanism 140 may comprise a rotatable connection point 134 between the vision restricting member 130 and the headband 110. This rotatable connection may allow angular adjustment of the vision restricting member 130 about at least one axis.

**[00123]** In some embodiments, the position adjustment mechanism 140 may allow rotation about two orthogonal axes. A first rotational axis may enable vertical adjustment of the vision restricting member 130. This vertical adjustment may allow the user to move the lower portion of the vision restricting member 130 closer to or further from their face. The vertical adjustment capability may be useful for temporarily lifting the vision restricting member 130 to communicate with a coach or teammate during practice, or to customize the level of visual obstruction for different training exercises.

**[00124]** A second rotational axis, generally orthogonal to the first axis, may permit angular adjustment of the vision restricting member 130 about the connection point 134. This angular adjustment may allow the user to rotate the vision restricting member 130 relative to their face, such that the lower portion of the vision restricting member 130 may move side-to-side relative to the user's face. This side-to-side adjustment may be beneficial for simulating different angles of visual obstruction that may be encountered during gameplay.

**[00125]** The position adjustment mechanism 140 may utilize various mechanical configurations to enable the desired adjustability. For example, the mechanism may comprise a ball and socket joint or a multi-axis hinge at the connection point 134 between the vision restricting member 130 and the headband 110. These configurations may allow for smooth rotation about multiple axes while maintaining a secure connection.

**[00126]** In some embodiments, the position adjustment mechanism 140 may also include a locking element. The locking element may be configured to secure the vision restricting member 130 in a selected position or orientation once adjusted. This locking capability may prevent unwanted movement of the vision restricting member 130 during use, ensuring consistent visual obstruction throughout a training exercise.

**[00127]** A locking element may take various forms, such as a friction-based system, a ratchet and pawl arrangement, or a pin and hole configuration. Additionally or alternatively, the locking element may utilize adjustable tension, a clamping system, or other means to hold the vision restricting member 130 in a particular orientation once positioned. The locking mechanism may be designed to allow for easy adjustment and fixing of the vision restricting member's position by the user during training sessions.

**[00128]** In some embodiments, the position adjustment mechanism 140 may also allow for linear or translational adjustment of the vision restricting member 130, in addition to or instead of rotational adjustment. This linear adjustment may be facilitated by a sliding mechanism, which may comprise a track and slider arrangement. The track may be attached to or formed as part of the connector 120 on the headband 110, while the slider may be affixed to the vision restricting member 130. In some configurations, the connection point 134 itself may serve as the slider. The slider may be configured to move along the track, enabling precise vertical positioning of the vision restricting member 130 relative to the user's face.

**[00129]** The rotational and/or linear adjustment capabilities in the position adjustment mechanism 140 may provide users with a high degree of customization in how they position the vision restricting member 130. This adjustability may allow athletes to simulate a wide range of visual obstruction scenarios, closely mimicking the varied conditions they might

encounter during actual gameplay. The ability to quickly and easily adjust the position of the vision restricting member 130 may also enhance the efficiency of training sessions, allowing for rapid transitions between different types of drills or exercises.

#### **IV. CLAIMS**

**[00130]** While the specification includes examples, the disclosure's scope is indicated by the following claims. Furthermore, while the specification has been described in language specific to structural features and/or methodological acts, the claims are not limited to the features or acts described above. Rather, the specific features and acts described above are disclosed as examples for embodiments of the disclosure.

**[00131]** Insofar as the description above and the accompanying drawing disclose any additional subject matter that is not within the scope of the claims below, the disclosures are not dedicated to the public and the right to file one or more applications to claims such additional disclosures is reserved.

**The following is claimed:**

1. A sports training apparatus comprising:  
a headband configured to encircle a user's head, the headband comprising:  
a pair of opposing side straps; and  
a top strap configured to connect to the side straps and cover a portion of the top of the user's head;  
a connector configured to connect the two side straps and the top strap; and  
a vision restricting member rotatably connected to the headband at a connection point on the connector, wherein the vision restricting member is shaped like a hand and comprises a plurality of ventilation holes.
2. The sports training apparatus of claim 1, wherein at least one of the side straps and the top strap is formed from an elastic material.
3. The sports training apparatus of claim 1, wherein at least one of the side straps and the top strap has an adjustable length.
4. The sports training apparatus of claim 1, wherein the connector comprises a padded side configured to interface with the user's forehead.
5. The sports training apparatus of claim 1, wherein the plurality of ventilation holes are formed in a palm portion of the hand-shaped vision restricting member.
6. The sports training apparatus of claim 1, wherein the vision restricting member is formed from a lightweight material selected from the group consisting of plastic and aluminum.

7. The sports training apparatus of claim 1, wherein the vision restricting member is angularly adjustable in a first direction about the connection point.

8. The sports training apparatus of claim 7, wherein the vision restricting member is angularly adjustable in a second direction, orthogonal to the first direction about the connection point.

9. A sports training system comprising:  
a headband apparatus configured to be worn on a user's head, the headband apparatus comprising:  
a first side strap and a second opposing side strap configured to encircle the user's head,  
a top strap configured to connect to the first and second side straps and extend over a top portion of the user's head, and  
a connector configured to join the first side strap, the second side strap, and the top strap; and  
a vision obstructing element rotatably coupled to the connector, wherein the vision obstructing element comprises:  
a hand-shaped member configured to partially obstruct the user's field of view,  
a plurality of apertures formed in a central portion of the hand-shaped member to allow airflow, and  
an adjustment mechanism configured to allow angular positioning of the hand-shaped member relative to the user's face about two orthogonal axes.
10. The sports training system of claim 9, wherein at least one of the first side strap, the second side strap, and the top strap comprises an elastic material.
11. The sports training system of claim 9, wherein at least one of the first side strap, the second side strap, and the top strap comprises an adjustable length mechanism.
12. The sports training system of claim 9, wherein the connector comprises a cushioned surface configured to contact the user's forehead.

13. The sports training system of claim 9, wherein the hand-shaped member is fabricated from a lightweight material selected from the group consisting of plastic and metal alloys.

14. The sports training system of claim 9, wherein the adjustment mechanism comprises a locking element configured to secure the hand-shaped member in a selected position relative to at least one of the two axes.

15. The sports training system of claim 9, wherein the vision obstructing element is configured to rotate about an axis perpendicular to a plane of the hand-shaped member.

16. A sports training device comprising:  
a head-encircling band comprising:  
a first elastic side portion;  
a second elastic side portion; and  
an elastic top portion connecting the first and second elastic side portions;  
a forehead pad connected to the head-encircling band; and  
a vision-limiting structure rotatably attached to the forehead pad, wherein the vision-limiting structure comprises:  
a hand-shaped panel configured to partially obstruct a user's field of view;  
a plurality of air passages formed through a central region of the hand-shaped panel; and  
a vertical adjustment mechanism configured to modify a position of the hand-shaped panel relative to the user's eyes.
17. The sports training device of claim 16, wherein at least one of the first elastic side portion, the second elastic side portion, and the elastic top portion comprises an adjustable length mechanism.
18. The sports training device of claim 16, wherein the hand-shaped panel is fabricated from a lightweight polymeric material.
19. The sports training device of claim 16, wherein the vertical adjustment mechanism comprises a locking element configured to secure the hand-shaped panel at a selected vertical position.
20. The sports training device of claim 16, wherein the vision-limiting structure is configured to rotate about an axis perpendicular to a plane of the hand-shaped panel.



**ABSTRACT**

A sports training apparatus may comprise a headband with opposing side straps and a top strap. A connector may connect the straps. A vision restricting member may be rotatably connected to the headband at the connector. The vision restricting member may be shaped like a hand and may comprise ventilation holes. The straps may be elastic or adjustable in length. The connector may have a padded side. The ventilation holes may be in a palm portion of the hand shape. The vision restricting member may be lightweight plastic or aluminum. It may be angularly adjustable in two orthogonal directions about the connection point.