

The relationship between body image and steroid use in bodybuilding athletes

Nur Hayati¹, Muhammad Rifki Haikal²

^{1,2}Fakultas Kedokteran dan Ilmu Kesehatan, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

ARTICLE INFO

Article history:

Received May 2, 2024
Revised May 7, 2024
Accepted May 21, 2024

Keywords:

Anabolic Steroids
Bodybuilding Athlete
Body Image

ABSTRACT

Having a strong body is something that most people want, especially men. Efforts to increase muscle are done by exercising at the fitness center or at home, drinking high protein milk and consuming anabolic steroids. Most anabolic steroid users, including bodybuilding athletes, want to have a bigger and more muscular body. This study aims to determine the relationship between body image of bodybuilding athletes and the use of anabolic steroids. This research uses quantitative methods with a cross sectional study design. The sampling technique is purposive sampling. The sample in this study consisted of 70 bodybuilding athletes who consumed anabolic steroids. Self-image measurement uses a self-image questionnaire that is adapted and modified and tested for validity and reliability. The data analysis technique used is the Chi-Square Test. The results of the study showed a p value = 0.017 ($p < 0.05$), which means there is a significant relationship between the body image of bodybuilding athletes and the use of anabolic steroids.

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.



Corresponding Author:

Nur Hayati,
Fakultas Kedokteran dan Ilmu Kesehatan,
Universitas Muhammadiyah Yogyakarta,
Jl. Brawijaya, Kasihan, Bantul, Yogyakarta 55183, Indonesia,
Email: nurhayati.fk.umy@gmail.com

INTRODUCTION

For some people, having a strong body is something that has high prestige value, especially men. Many of them have tried to increase the muscles in their bodies, starting from going to the gym, doing exercises at home, drinking high protein milk, to taking steroids to have the body they want. Most frequent reason reported by steroid users (31% of steroid users) is wanting to be bigger/more muscular (Wright, Grogan, and Hunter 2000). Not only fitness center fans, but many athletes also use steroids as doping to support their training and stamina according to their expected goals.

Anabolic steroids are chemical compounds derived from the hormone testosterone which are useful for increasing strength and speed by increasing muscle mass (increasing muscle size). The presence of this substance is difficult to detect because it is similar to natural substances in the body. So many athletes use these substances to support their training or competition performance. In the field medical, compound the used for treat deficiency testosterone, puberty delay, anemia, breast cancer, and tissue damage consequence virus HIV such as Sustanon, Metandienone, Stanozolo, and Deca Durabolin (Adityawan and Hendriana 2019).

According to Budiawan (2013), the main effect of anabolic steroids is that they are anabolic or increase muscle size and are androgenic or have a masculinity effect. Athletes, bodybuilders and others extensively abuse anabolic steroids during development they to increase performance athletics, strength muscle, and increase appearance. Abused doses are usually 10 to 100 times higher than doses used in medical conditions (DEA, 2013).

In fitness centers there are still many anabolic steroid users, both beginners and people who have been training for a long time. According to (Tahtamouni et al. 2008; van Amsterdam, Opperhuizen, and Hartgens 2010) anabolic steroids are more often used by athletes and teenagers to improve training performance and physical appearance. It has been reported that steroid use is also associated with increased self-confidence. This is also related to the negative body image of bodybuilding athletes who use steroids to make muscle fibers look thicker. Harvard Medical School professor of psychiatry. Dr Harrison Pope (2003), states that use of steroids give young people a chance to hide shyness behind that muscular body popular.

Based on this background, an analysis will be carried out on the relationship between body image and the use of anabolic androgenic steroids in bodybuilding athletes with the aim of determining whether or not there is a relationship between body image of bodybuilding athletes and the use of anabolic steroids.

RESEARCH METHOD

This research is quantitative research, with a correlation (relationship) research design and the type of research used is non-experimental, with a design in the form of a cross sectional study. The variable used in this research is the body image of bodybuilding athletes as the independent variable and the dependent variable is steroid use. The population in this study were bodybuilding athletes with a sample of male bodybuilding athletes who attended fitness centers in Yogyakarta. Sampling used a purposive sampling technique, namely selecting a sample with population characteristics that were in accordance with certain criteria applied based on the research objectives or problems, namely the age range from 18 to 55 years and a sample of 70 bodybuilding athletes was obtained. Data analysis procedures involve editing data and information collected by questionnaire, inserting data/information into the computer, data validation, re-inserting data that has been validated according to the variables to be analyzed, as well as determining the data analysis program (SAS, SPSS, and/ or others), data tabulation and finally data interpretation (LIPI, 2012). In analyzing research data, the statistical test used is the Chi-Square Test.

RESULTS AND DISCUSSIONS

Characteristics of Research Respondents

Respondent characteristics are the type of background of the respondent. This is to find out what the respondent's background is like. In this research. The respondent's background was focused on gender, age, occupation, length of training, and fitness center in their area of origin. The following results were obtained.

Table 1. Characteristics of research respondents

No.	Characteristics	N	S	NS	%
1	Types of Steroids				
	Deca Durabolin	16			45,714
	Dianabol	11			31,428
	Etc	8			22,857
	Total	35			100.0
2	Gender				
	Man	70	35	35	100
	Woman	0			0
	Total	70			100.0

No.	Characteristics	N	S	NS	%
3	Age				
	23-28	13	10	3	18,571
	29-33	27	10	17	38,571
	34-37	27	15	12	38,571
	38-46	3	3	3	4,287
	Total	70	35	35	100.0
4	Work				
	Entrepreneur	14	6	8	20,00
	Government employees	16	6	10	22,857
	Private Employees	13	8	5	18,571
	Gym Personal Trainer	27	15	12	38,571
	Total	70	35	35	100.0
5	Exercise Duration				
	5-10 years	11	9	13	31,429
	11-15 years	44	24	20	62,857
	>15 years	4	2	2	5,714
	Total	70	35	35	100.0
6	Fitness Center Location				
	Bantul				
	Sleman	32	19	13	45,714
	Municipality	19	7	12	27,143
	Total	19	9	10	27,143
	Total	70	35	33	100.0

The description of the characteristics of research respondents in table 1 shows that the majority of respondents used the anabolic steroid deca durabolin intramuscularly, 16 respondents with a dose of 200-400 mg once a week. Then the second most used was oral dianabol by 11 respondents with a dosage of 20-30 mg/2-3 pills per day. The range of use of anabolic steroids is 2-10 years of use. All research respondents were male (100%), the majority were aged 29-33 and 34-37 years, namely 27 people (38.571%) and those who used anabolic steroids (S) at the age of 29-33 were 10 people while Those who did not use anabolic steroids (NS) were 17 people, while those aged 34-37 years who used anabolic steroids were 15 people and those who did not use anabolic steroids were 12 people, then those aged 23-28 years were 13 people (18.571%) and There were 10 people who used anabolic steroids, while there were 3 people who did not use anabolic steroids. The largest job distribution was gym personal trainer, namely 27 respondents (38.571%) and 15 people used anabolic steroids, while 12 people did not use anabolic steroids. Most of the research respondents had been bodybuilding athletes for 11-15 years, namely 44 respondents (62.857%) and 24 people used anabolic steroids, while 20 people did not use anabolic steroids. Of all the research respondents, 32 respondents were bodybuilding athletes from Bantul (45.714%) with 19 people using anabolic steroids and 13 people not using anabolic steroids.

Results of Univariate Analysis of Research Variables

Distribution of Research Respondent Data

The distribution of research questionnaires to research respondents can be seen in Table 2.

Table 2. Distribution of research questionnaires to research respondents

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Total	,139	70	,002	,975	70	,178

a. Lilliefors Significance Correction

Based on Table 2, the distribution of research questionnaires to research respondents was obtained with a significance value of 0.002 in the Kolmogorov-Smirnov normality test, so it can be said that the research data was not normally distributed because the significance was <0.05.

Distribution of Body Image of Research Respondents

The distribution of body image of research respondents who are bodybuilding athletes can be seen in Table 3.

Table 3. Distribution of body image of research respondents

Body Image	N	%
Good	34	48,571
Enough	36	51,429
Not enough	0	
BadTotal	070	
		100.0

Based on Table 3, the distribution of body image of bodybuilding athletes who were respondents to this study was that the majority of respondents had a fair body image, namely 36 people (51.429%) and 34 other respondents had a good body image (48.571%).

Results of Bivariate Analysis of Research Variables

The Relationship between Body Image and Steroid Use in Bodybuilding Athletes

The results of the cross-tabulation analysis of the relationship between body image and steroid use of research respondents can be seen in Table 4.

Table 4. Steroid use in bodybuilding athletes

		Steroid Use * Body Image Crosstabulation		
		Count		Total
Steroid Use		Body Image		
		Good	Enough	
Yes		13	22	35
No		23	12	35
Total		36	34	70

Based on Table 4, of the 35 research respondents who used anabolic steroids, 13 respondents had a good body image (37.15%) and 22 other people had a fair body image (62.85%). On the other hand, of the 35 respondents who did not use anabolic steroids, 21 respondents had good body image (60%) and 14 other respondents had fair body image (40%).

Table 4. The relationship between body image and steroid use in bodybuilding athletes

	Chi-Square Tests				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,719a	1	.017		
Continuity Correction b	4,632	1	.031		
Likelihood Ratio	5,800	1	.016		
Fisher's Exact Test				.031	.015
Linear-by-Linear Association	5,637	1	.018		
N of Valid Cases	70				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.00.

b. Computed only for a 2x2 table

The results of this research regarding the relationship between body image and the use of anabolic steroids have a p value of 0.017 ($p < 0.005$), which means there is a significant relationship between body image and the use of anabolic steroids.

Discussion

The results of this research on body image and the use of anabolic steroids show that the majority of anabolic steroid users are all male research respondents (100%), mostly aged 29-33 years and 34-37 years, namely 27 people each (38.571%). Subject There were 10 people who used anabolic steroids (S) at the age of 29-33, while those who did not use anabolic steroids (NS) were 17 people, while at the age of 34-37 years there were 15 people who used anabolic steroids (S). anabolic steroids (NS) as many as 12 people, with the dominant occupation being as a gym personal trainer, namely 27 respondents (38.571%) and who have been bodybuilding athletes for 11-15 years, namely 44 respondents (62.857%) and 32 respondents are bodybuilding athletes from Bantul (45,714 %). The research results showed that there were 25 out of 35 respondents who used anabolic steroids aged 29-37. This research is in accordance with (Hakansson et al. 2012) which shows that the use of anabolic steroids is more often used by people aged over 26 years. The reason for using anabolic steroids at the age of 26 years and over is for cosmetic and physical performance purposes as doping and to support performance during competition.

Obtained research results 45.714% of respondents use a type of anabolic steroid deca durabolin intramuscularly with a dosage of 200-400 mg per week. Meanwhile, the second most commonly used steroid is oral dianabol at a dose of 20-30 mg per day or 2-3 pills per day. This is in accordance with research (Razavi et al. 2014) which says that nandrolone/deca durabolin is the most frequently used type of anabolic steroid. This is due to the fast properties of deca durabolin in increasing muscle growth and increasing physical strength.

The results of this study showed that the majority of research respondents who were bodybuilding athletes had adequate body image, namely 36 people (51.429%) and 34 respondents had good body image (48.571%). This shows that the majority of respondents, namely 36, have sufficient satisfaction with their body image compared to 34 respondents who have better satisfaction with their body image. Body image dissatisfaction is when there is a difference between the perceived body image and the body image a person desires. This is in line with research (Silva, da Silva, and Gonçalves 2015) that The average body image score shows negative, so it can be interpreted that bodybuilders are trying to get a bigger appearance than their current appearance. The reasons men use anabolic steroids are usually to increase muscle mass, improve physical appearance, and these are the top three motivations for using anabolic steroids (Murray et al., 2016). This refers to poor body image in bodybuilders who use anabolic steroids.

Body image can be seen positively or negatively depending on the individual's perception. A person with a positive body image is aware of their body shape along with their appearance. They believe other people will accept and think that they are attractive. When someone believes that they do not look attractive, they will likely begin to have negative feelings about their body image and that they do not measure up to the expectations of society, family, friends, and the media. This is compared to when an athlete performs well or feels successful; he can feel good about himself but when an athlete does not perform well or views himself as a loser (Campbell-Phillips et al., 2019; Sabiston et al., 2019).

Research on the relationship between body image and the use of anabolic steroids shows that 70 respondents who used anabolic steroids had a good body image, 36 respondents (51.429%) and 34 respondents had a good body image (48.571%). Of the 35 steroid users, there were 22 respondents with fair body image and 13 respondents with good body image, while of the 35 respondents who did not use anabolic steroids there were 14 respondents with fair body image and 21 respondents with good body image. The results of this study show that there is a significant relationship between body image and the use of anabolic steroids (r count $<$ r table) = (0.017 $<$ 0.05) where men who do not use anabolic steroids tend to have a better body image compared to men who use anabolic steroids. The results of this study are in accordance with Hilkie et al. (2021) which shows that body image has a significant total influence on the use of supplements including anabolic steroids. Men who use anabolic steroids usually use them to increase muscle

mass, improve physical appearance, and these are the top three motivations for anabolic steroid use (Murray et al., 2016). A recent meta-analysis indeed showed a higher prevalence rate in gym users (18.4%), compared with the prevalence rate in the global population as a whole (3.3%) (Hilkens et al., 2021).

In research by Murray et al. (2016) said that their initial motivation for AAS was to improve their appearance (50.4%), to improve their performance (30.6%), or to improve their performance and appearance (19.0%). Different patterns were observed regarding current motivations for AAS use; appearance (41.3%) followed by performance and appearance (33.1%), which is then followed by performance (25.6%). Most men who use steroids tend to do so to improve appearance (e.g. muscle), performance (e.g. strength), or both. Negative body image is a major risk factor for anabolic steroid use as there is a desire to increase muscle that is significantly associated with steroid use among young adult men (Murray et al., 2016).

CONCLUSION

There is a significant relationship between body image and the use of anabolic steroids. Research respondents are expected to be able to look for sources of information and knowledge either in the form of print media or on the internet regarding the appropriate use of anabolic steroids and the side effects that can result from their use. In addition, it is hoped that research respondents can find and use other coping methods related to self-confidence regarding body image. Future researchers are expected to be able to conduct research on other factors that can influence the body image of bodybuilder athletes and conduct research with a more effective and in-depth approach. The results of the study can be used by policy makers to design better regulations regarding steroid use in sport, as well as support initiatives for the mental and physical health of athletes. It can also help in developing policies that aim to reduce the social and cultural pressures that encourage steroid use, while it can also help medical professionals in designing a more holistic approach in dealing with steroid users. An understanding of how body image influences the decision to use steroids can help doctors and counselors to provide more appropriate and thorough support to their patients.

References

- Annisa, R., Yanti, M., & Azrin, E. M. (2016). Body Image Of Heavy Lifters, Weightlifters and Bodybuilder Of Indonesian National Sports Committee (KONI) Riau Province On Year 2015. In *JOM FK* (Vol. 3, Issue 1).
- Adityawan, Oki, and Dian Hendriana. 2019. "Infografis Mengenai Efek Samping Steroid Anabolik Terhadap Atlet Binaraga Kota Bandung." *Jurnal Komunikasi*, 8.
- Al-Falasi, Omar, Khalid Al-Dahmani, Khalid Al-Eisaei, Salem Al-Ameri, Fatma Al-Maskari, Nicholas Nagelkerke, and John Schneider. 2009. "Knowledge, Attitude and Practice of Anabolic Steroids Use Among Gym Users in Al-Ain District, United Arab Emirates." *The Open Sports Medicine Journal* 2 (1): 75-81. <https://doi.org/10.2174/1874387000802010075>.
- Anawalt, Bradley D. 2019. "Diagnosis and Management of Anabolic Androgenic Steroid Use." *J Clin Endocrinol Metab*, 11..
- Andiana, O. 2012. *MEDIKORA : Hormon Anabolik Pada Olahragawan*. Vol. IX. pp.1.
- Andiyati, A. D. W. (2016). Hubungan antara body image dengan kepercayaan diri siswa kelas X di SMA Negeri 2 Bantul. *Jurnal Riset Mahasiswa Bimbingan Dan Konseling*, 5(4).
- Ålgars, Monica, Pekka Santtila, Markus Varjonen, Katarina Witting, Ada Johansson, Patrick Jern, and N. Kenneth Sandnabba. 2009. "The Adult Body: How Age, Gender, and Body Mass Index Are Related to Body Image." *Journal of Aging and Health* 21 (8): 1112-32.
- Amsterdam, Jan van, Antoon Opperhuizen, and Fred Hartgens. 2010. "Adverse Health Effects of Anabolic-Androgenic Steroids." *Regulatory Toxicology and Pharmacology* 57 (1): 117-23. <https://doi.org/10.1016/j.yrtph.2010.02.001>.
- Andiana, Olivia. 2012. "Hormon Anabolik Pada Olahragawan." *Medikora*, no. 1.
- Budiawan, M. 2013. Doping Dalam Olahraga. , pp.330-335

- Campbell-Phillips, S., Phillips, S. C., & Halder, D. P. (2019). Negative Body Image and Low Self-Esteem: A Study of athletes for Solutions through Inspirational Intrinsic Positive Self-Esteem. *International Journal of Recent Innovations in Academic Research*, 8, 96-107. <https://doi.org/10.13140/RG.2.2.16641.61281>
- Chudik, S.C. 2003. Anabolic Steroid. (Online), (<http://www.hoasc.com/pdf/R03-literature.pdf>, diakses pada tanggal 1 November 2016)
- Cicero, T.J. and Lynn H.O., 1990. Anabolic Steroids in Sport, (Online), (<http://www.steroidsport.com/home>, diakses tanggal 2 November 2016).
- Gök, Rahime, Ayşe Dilara Yalçın, and Ümit Tural. 2016. "Anabolik Steroidlerin Kötüye Kullanımı" 17 (4): 9.
- Guyton, Arthur C., and Jhon E. Hall. 2019. "Buku Ajar Fisiologi Kedokteran." In . EGC.
- Hilkens, L., Cruyff, M., Woertman, L., Benjamins, J., & Evers, C. (2021). Social Media, Body Image and Resistance Training: Creating the Perfect 'Me' with Dietary Supplements, Anabolik Steroids and SARM's. *Sports Medicine - Open*, 7(1). <https://doi.org/10.1186/s40798-021-00371-1>
- Hakim lukman dkk, 2012. Pedomani Karya Tulis Ilmiah, Lembaga Ilmu Pengetahuan Indonesia, Jakarta
- Hill, Stephanie A., and W. Stephen Waring. 2019. "Pharmacological Effects and Safety Monitoring of Anabolic Androgenic Steroid Use: Differing Perceptions between Users and Healthcare Professionals." *Therapeutic Advances in Drug Safety* 10 (January): 204209861985529. <https://doi.org/10.1177/2042098619855291>.
- Hm, Musrin. n.d. "Pendekatan Psikologi Individual Dengan Teknik Acting As If Dalam Meningkatkan Rasa Percaya Diri Pada Remaja Yang Mengalami Obesitas," 7.
- Hoffman, J.R. and Ratamess, N.A., 2006. Medical Issues Associated With Anabolic Steroid Use : Are They Exaggerated ? (Review Article). *Journal of Sports Science and Medicin*. Vol. 5. pp.182-193.
- Hakansson, Anders, Kajsa Mickelsson, Camilla Wallin, and Mats Berglund. 2012. "Anabolic Androgenic Steroids in the General Population: User Characteristics and Associations with Substance Use." *European Addiction Research* 18 (2): 83-90. <https://doi.org/10.1159/000333037>.
- Hale, Bruce D., Danielle Diehl, Krista Weaver, and Michael Briggs. 2013. "Exercise Dependence and Muscle Dysmorphia in Novice and Experienced Female Bodybuilders." *Journal of Behavioral Addictions* 2 (4): 244-48.
- Hamdani, Daiman. 2019. "Hubungan Citra Tubuh Dan Pengetahuan Gizi Seimbang Dengan Gizi Status Remaja Di SLTP Negeri 2 Wungu Madiun," 108.
- Johnson, Mimi D, M Susan Jay, Brad Shoup, and I Rickert. n.d. "Anabolic Steroid Use by Male Adolescents," 6.
- Katzung, Bertram G. 2014. *Farmakologi Dasar Dan Klinik*, Edisi 12. Jakarta : EGC.
- Katzung, Bertram G., Susan B. Masters, and Anthony J. Trevor. 2004. "Basic & Clinical Pharmacology.". Jakarta. EGC.
- Lenehan, Pat dan Tony Miller. 2004. *Anabolic Steroids : A Guide For Users and Professional*. Lifetime Publications.
- Leutholtz, A. 2001. *Nutritional health*. Totowa, NJ. Human Press Inc: 207-39.
- Littleton, Heather. 2008. "Body Image Dissatisfaction: Normative Discontent?" Springer Nature BV.
- Mampanini, Rizky Annisa, Yanti Ernalina, and Miftah Azrin. 2016. "Body Image Atlet Angkat Berat, Angkat Besi, Dan Binaraga Komite Olahraga Nasional Indonesia (Koni) Provinsi Riau Tahun 2015." *Journal:eArticle*, Riau University. <https://www.neliti.com/publications/188115/>.
- Managkabo, Perdinan, Barnabas Harold Ralph Kairupan, and Aaltje Ellen Manampiring. 2021. "Citra Tubuh, Pengetahuan, Sikap Dan Tingkat Aktivitas Fisik Mahasiswa Pada Masa Pandemi Corona Virus Disease 2019." *Sam Ratulangi Journal of Public Health* 2 (1): 007-013.
- Marfu'ah, N., Kasa, I.W. and Yowani, S.C., 2014. Pengaruh Steroid Anabolik Methandienone Terhadap Kuantitas Spermatozoa Tikus Putih (*Rattus norvegicus*). , 18(1), pp.24-27.
- Muhsin, A. (2014). Studi Kasus kepuasan Remaja Putri Terhadap Keadaan Tubuhnya (Body Image Negatif Pada Remaja Putri). Skripsi. UNY
- Magnolini, R., Falcato, L., Cremonesi, A., Schori, D., & Bruggmann, P. (2022). Fake anabolik androgenic steroids on the black market - a systematic review and meta-analysis on qualitative and quantitative analytical results found within the literature. *BMC Public Health*, 22(1). <https://doi.org/10.1186/s12889-022-13734-4>
- Murray, S. B., Griffiths, S., Mond, J. M., Kean, J., & Blashill, A. J. (2016). Anabolik steroid use and body image psychopathology in men: Delineating between appearance- versus performance-driven motivations. *Drug and Alcohol Dependence*, 165, 198-202. <https://doi.org/10.1016/j.drugalcdep.2016.06.008>
- Notoatmodjo, Soekidjo. 2011. "Kesehatan Masyarakat Ilmu Dan Seni." Jakarta. PT Rineka Cipta.

- Nurfajri, Annisa Prajna, and Qurotul Uyun. 2017. "Hubungan Antara Kebersyukuran Dan Body Image Pada Remaja Putri."
- Parr, Maria Kristina, and Anna Müller-Schöll. n.d. "Pharmacology of Doping Agents – Mechanisms Promoting Muscle Hypertrophy." *AIMS Molecular Science* 5 (2): 29.
- Pakpahan, Martina, Deborah Siregar, Andi Susilawaty, Tasnim Tasnim, Mustar, Radeny Ramdany, Evanny Indah Manurung, et al. 2021. *Promosi Kesehatan dan Perilaku Kesehatan*. Yayasan Kita Menulis.
- Patanè, Federico Giuseppe, Aldo Liberto, Andreana Nicoletta Maria Maglitto, Pasquale Malandrino, Massimiliano Esposito, Francesco Amico, Giuseppe Cocimano, Giuseppe Li Rosi, Dario Condorelli, and Nunzio Di Nunno. 2020. "Nandrolone Decanoate: Use, Abuse and Side Effects." *Medicina* 56 (11): 606.
- Putra, Adnyana. 2017. "Body Image Dan Hubungannya Dengan Aktivitas Berolahraga." *Jurnal Penjakora* 2 (2): 88-97.
- Ramanda, Riskha, Zarina Akbar, and RA Murti Kusuma Wirasti. 2019. "Studi Kepustakaan Mengenai Landasan Teori Body Image Bagi Perkembangan Remaja." *Jurnal Edukasi: Jurnal Bimbingan Konseling* 5 (2): 121-35.
- Rzaei, Seyed Mohammad Amin. 2017. "Study the Prevalence of Anabolic Steroids Consumption among Bodybuilding Athletes in Yasuj, Iran." *International Journal of Nutrition Sciences* 2 (2): 103-8.
- Samosir, Devi Triana Putri, and Dian Ratna Sawitri. 2015. "Hubungan Antara Citra Tubuh Dengan Pengungkapan Diri Pada Remaja Awal Kelas VII." *Jurnal Empati* 4 (2): 14-19.
- Silva, Diego A. S., Rafael C. da Silva, and Eliane C. A. Gonçalves. 2015. "Body Image among Men Who Practice Body Building: Comparison by Age, Economic Status, and City Size." *Perceptual and Motor Skills* 121 (2): 537-47. <https://doi.org/10.2466/27.PMS.121c20x0>
- Sari, P.K., Poppy M.L., dan Lily L.L. 2015. Efek Pemberian Anabolik androgenic steroid Injeksi Dosis Rendah Dan Tinggi Terhadap Gambaran Histopatologi Hati Dan Otot Rangka Tikus Wistar (Rattus Novergicus). Vol. 3.
- Sherwood, L. 2002. Fisiologi Manusia dari Sel ke Sistem. Penerbit Buku Kedokteran, EGC. Jakarta.
- Sabiston, C. M., Pila, E., Vani, M., & Thogersen-Ntoumani, C. (2019). Body image, physical activity, and sport: A scoping review. *Psychology of Sport and Exercise*, 42, 48-57. <https://doi.org/10.1016/j.psychsport.2018.12.010>
- Tahtamouni, L. H., N. H. Mustafa, A. A. Alfaouri, I. M Hassan, M. Y. Abdalla, and S. R. Yasin. 2008. "Prevalence and Risk Factors for Anabolic-Androgenic Steroid Abuse among Jordanian Collegiate Students and Athletes." *The European Journal of Public Health* 18 (6): 661-65. <https://doi.org/10.1093/eurpub/ckn062>
- Vassallo, Mario J., and Tracy W. Olrich. 2010. "Confidence by Injection: Male Users of Anabolic Steroids Speak of Increases in Perceived Confidence through Anabolic Steroid Use." *International Journal of Sport and Exercise Psychology* 8 (1): 70-80.
- Wright, Sam, Sarah Grogan, and Geoff Hunter. 2000. "Motivations for Anabolic Steroid Use among Bodybuilders." *Journal of Health Psychology* 5 (4): 566-71.
- Yuliandari, Citra Selvia, and H. M. Musrin. 2017. "Pendekatan Psikologi Individual Dengan Teknik *Acting As If* Dalam Meningkatkan Rasa Percaya Diri Remaja Yang Mengalami Obesitas: *Case Study Design*." *Ghaidan: Jurnal Bimbingan Konseling Islam Dan Masyarakat* 1 (2): 21-27.
- Zein. 2007. *Ultimate Nutrition Glosarry*, (Online), (<http://www.sportindo.com/Glosarry>, diakses tanggal 1 November 2016).